

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) The file management apparatus of Claim 32 further comprising:
an access request receiving unit operable to receive a segment access request specifying a segment name;
a position information read unit operable to read, from the position information storage unit, a piece of position information corresponding to the segment name specified in the segment access request; and
a segment access unit operable to access a segment in the file storage unit by referring to the read piece of position information.
2. (Previously Presented) The file management apparatus of Claim 32, wherein the piece of numerical information contained in each piece of data stored in the file storage unit is a timecode, the file management apparatus further comprising:
an access request receiving unit operable to receive a segment access request specifying a segment name;
a position information read unit operable to read, from the position information storage unit, a piece of position information corresponding to the segment name specified in the segment access request; and
a segment access unit operable to access a segment in the file storage unit by referring to the read piece of position information.

3. (Original) The file management apparatus of Claim 2, wherein
each piece of segment position information includes (1) an address indicating a file start storage position of a file to which the segment belongs, and either (2-1) (a) an address offset indicating a size of a portion between the file start and a start of the segment and (b) an address offset indicating a size of a portion between the file start and an end of the segment, or (2-2) (a) an address offset indicating a size of a portion between the file start and a start of the segment and (c) a size of the segment.
4. (Original) The file management apparatus of Claim 3, wherein
the position information storage unit stores the pieces of position information in the same order as the segments for each file, and
the file management apparatus further comprising:
a receiving unit operable to receive a segment name obtainment request; and
a segment name output unit operable to, after the receiving unit receives the segment name obtainment request, refer to the position information storage unit and output to outside the file management apparatus a list of segment names which each include at least (1) a file name of a file to which the segment belongs and (2) a character sequence which indicates a position of the segment in one or more segments belonging to the file.
5. (Original) The file management apparatus of Claim 4, wherein
the position information storage unit stores a table showing relationships between (1) file names of files to which the segments belong, (2) serial numbers of the segments in the files which are assigned in order of storage in the files, and (3) pieces of position information, and
the position information read unit, after receiving a segment name, refers to the table to detect a piece of position information that corresponds to a file name and a serial

number of the segment which are included in the segment name, and reads the detected piece of position information from the table.

6. (Previously Presented) The file management apparatus of Claim 32, wherein the piece of numerical information contained in each piece of data stored in the file storage unit is a timecode, and the file storage unit further stores, as an entry that corresponds to a file name of the file, position information that indicates a storage position of the file in the file storage unit, the file management apparatus further comprising:
 - an access request receiving unit operable to receive an access request specifying an access target name which is either a segment name or a file name;
 - a judgement unit operable to judge whether the access target name is a segment name or a file name;
 - a position information read unit operable to read, from either the first position information storage unit or the second position information storage unit, a piece of position information corresponding to the access target name judged by the judgement unit; and
 - an access unit operable to access either a segment or a file stored in the file storage unit by referring to the read piece of position information.
7. (Original) The file management apparatus of Claim 6, wherein
 - the judgement unit judges that the access target name is a segment name when the access target name includes a name of a file stored in the file storage unit and a character sequence indicating a serial number of a segment in the file.

8. (Previously Presented) The file management apparatus of Claim 32 further comprising:
- a file obtaining unit operable to obtain files which each include a plurality of pieces of video data that have each been assigned a timecode, and store the obtained files in a file storage unit;
 - a segment access request receiving unit operable to receive a segment access request specifying a segment;
 - a position information read unit operable to read, from the position information storage unit, a piece of position information corresponding to the segment specified in the segment access request; and
 - a segment access unit operable to access the segment in the file storage unit by referring to the read piece of position information.
9. (Previously Presented) The file management apparatus of Claim 32 further comprising:
- a file obtaining unit operable to obtain files which each include a plurality of pieces of video data that have each been assigned a timecode, and store the obtained files in a file storage unit;
 - a segment access request receiving unit operable to receive a segment access request specifying a segment;
 - a position information read unit operable to read, from the position information storage unit, a piece of position information corresponding to the segment specified in the segment access request; and
 - a segment access unit operable to access the segment in the file storage unit by referring to the read piece of position information.

10. (Previously Presented) The file management apparatus of Claim 34 further comprising:
an access request receiving unit operable to receive a segment set access request
specifying a segment set name, each segment set being composed of all segments
in a file, and each segment set name including a name of the file and a character
sequence unique to segment set names;
a position information read unit operable to identify a file to which a segment set
corresponding to the specified segment set name belongs, and read, from the
position information storage unit, pieces of position information corresponding to
all segments belonging to the identified file, recognizing the read pieces of
position information as a piece of position information of the segment set; and
a segment set access unit operable to access the segment set in the file storage unit by
referring to the piece of position information of the segment set.
11. (Original) The file management apparatus of Claim 10, wherein
each piece of segment position information includes (1) an address indicating a file start
storage position of a file to which the segment belongs, and either (2-1) (a) an
address offset indicating a size of a portion between the file start and a start of the
segment and (b) an address offset indicating a size of a portion between the file
start and an end of the segment, or (2-2) (a) an address offset indicating a size of a
portion between the file start and a start of the segment and (c) a size of the
segment.
12. (Original) The file management apparatus of Claim 11 further comprising:
a receiving unit operable to receive a segment set name obtainment request; and
a segment set name output unit operable to, after the receiving unit receives the segment
set name obtainment request, refer to the position information storage unit and
output to outside the file management apparatus a list of segment set names which
each include (1) a file name of a file to which the segment set belongs and (2) a
character sequence unique to segment set names.

13. (Previously Presented) The file management apparatus of Claim 12, wherein
each piece of data includes a piece of video data to which a timecode has been assigned;
and
the segment judging unit judges whether two timecodes assigned to two pieces of video
data are continuous.
14. (Previously Presented) The file management apparatus of Claim 34 further comprising:
an access request receiving unit operable to receive an access request specifying an
access target name;
a judgement unit operable to judge whether the access target name is a segment set name
or a file name, each segment set being a set of all segments included in one file;
a position information read unit operable to read, from either the file storage unit or the
position information storage unit, a piece of position information corresponding to
the access target name judged by the judgement unit; and
an access unit operable to access either a segment set or a file stored in the file storage
unit by referring to the read piece of position information.
15. (Original) The file management apparatus of Claim 14, wherein
the judgement unit judges that the access target name is a segment set name when the
access target name includes a name of a file stored in the file storage unit and a
character sequence unique to segment set names.
16. (Previously Presented) The file management apparatus of Claim 32, wherein
the position information storage unit stores position information that indicates a position
of a free space storing no data, the file management apparatus further comprising:
an add request receiving unit operable to receive a segment add request which requests to
add a new segment to a file;
a segment obtaining unit operable to obtain a new segment;

- a position information read unit operable to read, from the position information storage unit, a piece of free space position information; and
- a segment add unit operable to add the new segment to the file storage unit by referring to the read piece of free space position information.
17. (Previously Presented) The file management apparatus of Claim 32, wherein the position information storage unit stores position information that indicates a position of a free space storing no data, the file management apparatus further comprising:
- an add request receiving unit operable to receive a segment set add request specifying (1) an add destination file and (2) a source file including a segment set which is to be added to the add destination file;
- a position information read unit operable to read, from the position information storage unit, a piece of free space position information indicating a position of a free space of the specified add destination file;
- a segment set extract unit operable to extract all segments included, in the source file as a segment set by referring to the pieces of segment position information stored in the position information storage unit; and
- a segment set add unit operable to add the extracted segment set to the free space by referring to the read piece of free space position information.
18. (Previously Presented) The file management apparatus of Claim 32, wherein the position information storage unit stores position information that indicates a position of a free space storing no data, the file management apparatus further comprising:
- an add request receiving unit operable to receive a file add request specifying (1) an add destination file and (2) a source file which is to be added to the add destination file;

a position information read unit operable to read, from the position information storage unit, a piece of free space position information indicating a position of a free space of the specified add destination file;

a file add unit operable to add the source file to the free space by referring to the read piece of free space position information.

19. (Previously Presented) The file management apparatus of Claim 34 further comprising:

an access request receiving unit operable to receive a segment partial set access request specifying a file name and a condition, each segment partial set being a set of one or more segments in one file;

a position information read unit operable to read, from the position information storage unit, pieces of position information corresponding to all segments belonging to the specified file and satisfying the specified condition, recognizing the read pieces of position information as a piece of position information of the requested segment partial set; and

a segment partial set access unit operable to access the segment partial set by referring to the piece of position information of the segment partial set.

20. (Previously Presented) The file management apparatus of Claim 19, wherein each piece of data includes a piece of video data to which a timecode has been assigned, and the segment judging unit judges whether two timecodes assigned to two pieces of video data are continuous.

21-30. (Cancelled)

31. (Currently Amended) The [[A]] file management apparatus of claim 46, wherein for managing files stored therein, comprising:
a file storage unit operable to store a file that contains two pieces of data, each piece of data being video data and containing a piece of numerical information being a time code;
the [[a]] segment judging unit further reads another piece of data from the file stored in the file storage unit, extracts a piece of numerical information being a time code from said another piece of data, -operable, for each file stored in the file storage unit, to read the two pieces of data, extract two pieces of numerical information being time codes respectively from the read two pieces of data, and judge judges whether the extracted two time codes are continuous in time series; and
the [[a]] segment generating unit operable, if the segment judging unit judges that the two time codes are continuous, to generate further generates a segment that contains the read two pieces of video data if the segment judging unit judges that the two time codes are continuous.
32. (Previously Presented) The file management apparatus of Claim 31, wherein the segment generating unit includes:
a position information storage unit;

a position obtaining unit operable, if the segment judging unit judges that the two pieces of numerical information are continuous, to obtain two pieces of position information respectively of the two pieces of data from the file storage unit; and
a position information write unit operable to, recognizing the two pieces of data as the segment, generate a segment name for identifying the recognized segment, and write into the position information storage unit (ii) the segment name and (ii) the two pieces of position information as an entry that corresponds to the segment name, the two pieces of position information indicating a storage position of the segment.

33. (Previously Presented) The file management apparatus of Claim 32, wherein
if the segment judging unit judges that the two pieces of numerical information are not continuous, the segment generating unit generates a segment that contains one of the read two pieces of data, and generates another segment that contains the other of the read two pieces of data.
34. (Previously Presented) The file management apparatus of Claim 33, wherein
if the segment judging unit judges that the two pieces of numerical information are not continuous, the position obtaining unit obtains two pieces of position information respectively of the two pieces of data from the file storage unit, and
the position information write unit, recognizing the two pieces of data as two different segments, generates two segment names for identifying the two segments, and writes into the position information storage unit (i) the two segment names and (ii) the two pieces of position information as entries that respectively correspond to the two segment names, the two pieces of position information indicating storage positions of the two segments, respectively.

35. (Currently Amended) The ~~[[A]]~~ file management method of claim 47, for use in a file management apparatus for managing files stored in a file storage unit thereof, wherein each of the files stored in the file storage unit contains two pieces of video data which each contain a time code, the file management method comprising:
- the [[a]] segment judging step for, for each file stored in the file storage unit, reading the two pieces of video data, extracting two time codes respectively from the read two pieces of video data, including reading another piece of data from the file stored in the file storage unit, extracting a piece of numerical information being a time code from said another piece of data, and judging whether the two time codes are continuous in time series; and
- the [[a]] segment generating step for, if the segment judging step judges that the two time codes are continuous, further generating a segment that contains the read two pieces of video data if the segment judging step results in a judgment that the two time codes are continuous.
36. (Previously Presented) The file management method of Claim 35, wherein the file management apparatus further includes a position information storage unit, and the segment generating step includes:
- a position obtaining step for, if the segment judging step judges that the two time codes are continuous, obtaining storage positions of the two pieces of video data from the file storage unit; and
- a position information write step for, recognizing the two pieces of video data as a segment, generating a segment name for identifying the recognized segment, and writing into the position information storage unit (i) the segment name and (ii) the two pieces of position information as an entry that corresponds to the segment name, the two pieces of position information indicating storage positions of the segment.

37. (Previously Presented) The file management method of Claim 36, wherein
if the segment judging step judges that the two time codes are not continuous, the
segment generating step generates a segment that contains one of the read two
pieces of video data, and generates another segment that contains the other of the
read two pieces of video data.
38. (Previously Presented) The file management method of Claim 37, wherein
if the segment judging step judges that the two time codes are not continuous, the
position obtaining step obtains storage positions of the two pieces of video data
from the file storage unit, and
the position information write step, recognizing the two pieces of video data as two
different segments, generates two segment names for identifying the two
segments, and writes into the position information storage unit (i) the two
segment names and (ii) the two pieces of position information as entries that
respectively correspond to the two segment names, the two pieces of position
information indicating storage positions of the two segments, respectively.
39. (Currently Amended) The [[A]] computer-readable recording medium of claim 48,
wherein that stores a file management program for use in a file management apparatus for
managing files stored in a file storage unit thereof, wherein each of the files stored in the
file storage unit contains two pieces of video data, each piece of video data containing a
time code, the file management program comprising:
the [[a]] segment judging step for, for each file stored in the file storage unit, reading the
two pieces of video data, extracting two time codes respectively from the read
two pieces of video data, including reading another piece of data from the file
stored in the file storage unit, extracting a piece of numerical information being a
time code from said another piece of data, and judging whether the two time
codes are continuous in time series; and

~~the [[a]] segment generating step for, if the segment judging step judges that the two time codes are continuous, further generating a segment that contains the read two pieces of video data~~ if the segment judging step results in a judgment that the two time codes are continuous.

40. (Previously Presented) The computer-readable recording medium of Claim 39, wherein the file management apparatus further includes a position information storage unit, and the segment generating step includes:
- a position obtaining step for, if the segment judging step judges that the two time codes are continuous, obtaining storage positions of the two pieces of video data from the file storage unit; and
 - a position information write step for, recognizing the two pieces of video data as a segment, generating a segment name for identifying the recognized segment, and writing into the position information storage unit (i) the segment name and (ii) the two pieces of position information as an entry that corresponds to the segment name, the two pieces of position information indicating storage positions of the segment.
41. (Previously Presented) The computer-readable recording medium of Claim 40, wherein if the segment judging step judges that the two time codes are not continuous, the segment generating step generates a segment that contains one of the read two pieces of video data, and generates another segment that contains the other of the read two pieces of video data.

42. (Previously Presented) The computer-readable recording medium of Claim 41, wherein
if the segment judging step judges that the two time codes are not continuous, the
position obtaining step obtains storage positions of the two pieces of video data
from the file storage unit, and
the position information write step, recognizing the two pieces of video data as two
different segments, generates two segment names for identifying the two
segments, and writes into the position information storage unit (i) the two
segment names and (ii) the two pieces of position information as entries that
respectively correspond to the two segment names, the two pieces of position
information indicating storage positions of the two segments, respectively.
43. (Previously Presented) A file management system having at least one video data file
comprising a plurality of pieces of video data, with at least some pieces of the plurality of
pieces of video data each comprising a time code wherein:
the file management system groups the plurality of pieces of video data into video
segments by scanning the file for discontinuities between time codes of pieces of
video data;
the file management system associates a unique segment name with each video segment
within the file such that each segment name can be used to read or replace the
associated segment within the file.

44. (Previously Presented) The file management system of Claim 43 wherein the file management system associates a file name with the video data file, and each segment name comprises the file name of the video data file and a serial number unique to that segment within the data file.
45. (Previously Presented) The file management system of Claim 44 wherein the file management system provides read and write access to an individual video segment within the video data file via the associated segment name.
46. (New) A file management apparatus for managing files stored therein, comprising:
a file storage unit operable to store a file that contains at least two pieces of data, each piece of data being video data or other data, each piece of video data containing a piece of numerical information being a time code;
a segment judging unit operable to read a piece of data from the file stored in the file storage unit, make an attempt to extract a piece of numerical information being a time code from the read piece of data, and judge whether the piece of numerical information has been extracted from the read piece of data; and
a segment generating unit operable, if the segment judging unit judges that the piece of numerical information has not been extracted from the read piece of data, to generate a segment composed of pieces of video data, each of which contains a piece of numerical information being a time code, that are present in the file until immediately before the read piece of data.
47. (New) A file management method for use in a file management apparatus for managing files stored therein, comprising:
a file storage step for storing a file that contains at least two pieces of data, each piece of data being video data or other data, each piece of video data containing a piece of numerical information being a time code;

a segment judging step for reading a piece of data from the file stored in the file storage step, making an attempt to extract a piece of numerical information being a time code from the read piece of data, and judging whether the piece of numerical information has been extracted from the read piece of data; and

a segment generating step for, if the segment judging step judges that the piece of numerical information has not been extracted from the read piece of data, generating a segment composed of pieces of video data, each of which contains a piece of numerical information being a time code, that are present in the file until immediately before the read piece of data.

48. (New) A computer-readable recording medium that stores a file management program for use in a file management apparatus for managing files stored therein, the file management program comprising:

a file storage step for storing a file that contains at least two pieces of data, each piece of data being video data or other data, each piece of video data containing a piece of numerical information being a time code;

a segment judging step for reading a piece of data from the file stored in the file storage step, making an attempt to extract a piece of numerical information being a time code from the read piece of data, and judging whether the piece of numerical information has been extracted from the read piece of data; and

a segment generating step for, if the segment judging step judges that the piece of numerical information has not been extracted from the read piece of data, generating a segment composed of pieces of video data, each of which contains a piece of numerical information being a time code, that are present in the file until immediately before the read piece of data.